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all the circuits tuned to the same period. The fact that signalling had been successfully carried out over a distance of 50 kilometers with a cylinder only 1.25 meters high and one meter in diameter led to the possibility of constructing portable apparatus for use in the field. He had designed a complete installation on a steam motor-car, on the roof of which was placed a cylinder, only six or seven meters high, that could be lowered while traveling. By means of this, communication had easily been carried on with a syntonized station 50 kilometers distant, a 25-cm. spark induction coil, taking about 100 watts, being used for transmitting. A strip of wire netting dragged behind the car was sufficient for earth connection, or in lieu of any earth connection the electrical capacity of the boiler might be utilized. As to the distance over which signalling had been effected, last spring he established a station at the Lizard and opened communications with St. Catherine's—a distance of over 300 kilometers. The amount of energy used in this case was not more than 150 watts, and the aerial conductor consisted of four parallel vertical wires  $1\frac{1}{2}$  meters apart and 48 meters long, or of a strip of wire netting of the same length. In conclusion, Mr. Marconi gave some examples of the progress made in the practical utilization of his system, and also briefly examined a method proposed by Professor Slaby.

#### *WIRELESS TELEGRAPHY IN THE NAVY.*

ADMIRAL BRADFORD, chief of the naval bureau of equipment, has given out the following extract from the report of the board which has investigated the question of transmitting messages by wireless telegraphy:

"From the examination of the subject, as outlined in the orders of the department, the board makes the following recommendations:

"1. That the use of homing pigeons be discontinued as soon as wireless telegraphy is introduced into the navy.

"2. That, pending such action, no new pigeon codes be established.

"3. That wireless telegraphy be adopted by the navy for transmission of messages between distant points.

"Referring to the last recommendation, the

board is of the opinion that a high degree of special electrical training is demanded for the successful operation of any system of wireless telegraphy, and it therefore suggests as necessary the establishment of two stations sufficiently far removed from each other for the training of officers and men.

"In its opinion this requirement would be best met by the establishment of such stations at the Navy Yard, Washington, and the Naval Academy, Annapolis. If wireless telegraphy fulfills what now seem to be its possibilities, the cadets should be thoroughly trained in it.

"As the investigation made by this board is not technical, there being no apparatus of any kind ready for test, but general in its character, such partial examinations as outlined above would not change the recommendations already made.

"The selection of any special system of wireless telegraphy is, in the opinion of the board, very largely a matter of business detail.

"If for any reason any competitive test of different systems is thoroughly desirable the board recommends, in view of the fact that the improved Marconi apparatus will not be available for several months, and that improvement in other systems may occur in that interval, that it be made only after due notice and preparation therefor, and by a special board of experts appointed for the purpose."

#### *THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.*

ARRANGEMENTS for the Denver meeting of the American Association for the Advancement of Science are locally assuming very definite shape. A meeting of the Colorado Science Teachers Association was held in Denver on May 11th and all the members of the American Association residing in Colorado were invited to attend, a special point being made in the call that the meeting would consider the August meeting of the American Association. The cooperation of the Society was pledged to the Local Executive Committee, and the committee itself was organized by the election of Mr. George Lyman Cannon as chairman and Mr. Arthur Williams, secretary of the Chamber of Commerce and Board of Trade, as secretary.

Mr. Jas. F. Callbreath, Jr., editor of the *Mining Reporter*, was appointed chairman of the committee on printing and will at once proceed to publish the Preliminary Announcement, which will be distributed to all members of the Association.

The permanent secretary has as yet been unable to secure definite information regarding the railroad rates. This is the first time the Association has met in the far West and all the passenger associations are holding their decisions contingent upon that of the Western Passenger Association, in whose territory the meeting is to be held. This association is not in the habit of taking definite action on meetings of this character until within 60 days of the meeting, and this has complicated the railroad question. The peculiar character of the Association, in that it is composed so largely of men connected with college faculties, who have a long summer vacation and desire to make their plans well in advance, and, in fact, the majority of whom leave home after commencement and are difficult to reach by mail, has been shown to the railroad people and a speedy decision is hoped for. The permanent secretary thinks it most probable that a rate of not to exceed one fare plus \$2 will be secured for the territory west of Chicago, and surely the passenger associations east of Chicago will make a rate at least as low as one fare and one-third. An effort is still being made to secure a one-fare rate for the entire trip.

#### SCIENTIFIC NOTES AND NEWS.

PROFESSOR WILLIAM JAMES, of Harvard University, began his course of Gifford Lectures at Edinburgh on May 16th.

THE Paris Academy of Sciences has elected Dr. Zeuner, of Dresden, a correspondent in the section of mechanics. The other nominations were: Professor Henry T. Eddy, University of Minnesota and Professor Zabonsdsky, of St. Petersburg. In the section of geography and navigation, Dr. Oudemans, of Utrecht, was elected correspondent. The other nominations were: Mr. Wharton, of London, Professor Albrecht, of Potsdam, and Professor Neumayer of Hamburg.

THE following have been elected honorary

members of the American Chemical Society: Professor William Ramsay, University College, London, Sir Henry E. Roscoe, University of London, Professor Emil Fischer, University of Berlin, Professor Adolph Baeyer, University of Munich, and Professor George Lunge, University of Zurich.

SIR WILLIAM MACCORMAC, president of the Royal College of Surgeons, London, has been elected a foreign associate fellow of the College of Physicians of Philadelphia.

MR. WILLIAM WHITWELL has been elected president of the British Iron and Steel Institute in succession to Sir William Roberts-Austen.

MR. W. LANGDON has been nominated for the presidency of the Institution of Electrical Engineers, London.

THE Linnean Society, London, has awarded its gold medal to Lieutenant Colonel Sir George King, the botanist, lately superintendent of the Royal Botanic Garden at Calcutta. He has published important monographs on the flora of India, China and the Malay Peninsula.

THE Bessemer Gold Medal of the British Iron and Steel Institute has been conferred upon Mr. John Edward Stead, F.I.C., in recognition of the value of his investigations of the physical and chemical properties of iron and steel.

DR. G. T. MOORE, of the department of biology at Dartmouth College, has been appointed algologist in the Department of Agriculture.

*Nature* states that news has been received of the safety of Professor W. Baldwin Spencer and Mr. Gillen. They report themselves in good health and already busy taking phonographic and cinematographic records. The Postmaster-General of South Australia has provided them with pocket apparatus for tapping the overland telegraph line when in the vicinity of their route.

THE president of the University of Tokyo, Deiroku Kikuchi, will represent Japan at the bi-centennial celebration of Yale University next October.

KING EDWARD VII. has consented to be patron of the British Medical Association.